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A
T R E A T I S E
ON THE
T E E T H:

WHEREIN AN

Accurate IDEA of their STRUCTURE is given; the
CAUSE of their DECAY pointed out,

AND

Their VARIOUS DISEASES enumerated.

TO WHICH IS ADDED,

The most Effectual METHOD of Treating the DISORDERS
of the TEETH and GUMS;

Established by a long and successful PRACTICE.

By the CHEVALIER RUSPINI,
SURGEON-DENTIST.

A NEW EDITION:

WITH

An APPENDIX of NEW CASES.

L O N D O N:

Printed for the AUTHOR, and may be had at his House in *Pall-Mall*; and of Mr. JOHNSON, *St. Paul's Church-Yard*; and of Messrs. KEARSLEY and MURRAY, *Fleet-Street*.

M.DCC.XC.

1798

THE ATIS

ON THE

THE E T H:

WHEREIN

Account of the Structure of the
Church of the Holy Spirit

AND

That Various Insects enumerated

as which is found

in the West of England, and the Disposition

of the Land and Climate

of the Country, and the History of the



A NEW EDITION

A NEW EDITION OF NEW CASES



LONDON

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M DCC LXX

T O
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PETER TRIQUET, Esqrs.

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MEMBERS of the above CORPORATION;

Who have, upon various Occasions,

- Shewn the *greatest Attention* to the IMPROVEMENT of every
Branch of the

ART OF SURGERY;

The FOLLOWING SHEETS are, with the GREATEST
RESPECT,

INSCRIBED,

By their MOST OBEDIENT SERVANT,

BARTH. RUSPINI.

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The following Subjects are, with the greatest
Respect,
Inscribed,
By their most Obedient Servants,
BARTHOLOMEW

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FIRST EDITION.

IT is needless to usher in this performance to the World by a Preface in the common form, proving the importance of the subject to be treated of, and the necessity of taking it up at this time. Both are sufficiently felt, and acknowledged: it will therefore suffice, that I briefly explain my intention in the following

lowing sheets, submitting it to the candid Public; whether or no the execution is answerable to the design.

I purpose, first, To give a distinct and accurate idea of the Anatomy of the Teeth, and the adjacent parts, to prevent as much as possible those accidents which arise from the ignorance of unskilful practitioners in this point; who, unacquainted with the structure of the parts, never fail to expose their patients to unnecessary pain, and frequently to dangerous consequences.

Secondly, To point out the more immediate causes of the diseases of the Teeth; and to shew how they may be mitigated, and in some measure prevented.

And

And thirdly, To introduce and recommend a more general attention than has hitherto prevailed, for the preservation of the Teeth, so useful to the purposes of life, and so ornamental in that part of the Creation where Beauty seems to have fixed her peculiar seat.

A long, extensive, and, I believe I may say, successful practice has enabled me to acquire the knowledge which I here pretend to communicate to the world. The subject is in some degree new in this Country; I therefore hope for indulgence, and claim no absolute merit, but in my intention. Whatever Share I may be farther entitled to

to from the performance itself, depends
entirely upon the judgment of the Reader to
bestow, and to whom I submit it, with-
out reserve.

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Whatever shall I may be further entitled

*The following is an accurate Copy of the Au-
THOR'S DIPLOMA, from the University of
BERGAMO, where he was educated.*

D I P L O M A

From the COLLEGE of

B E R G A M O.

IN CHRISTI NOMINE AMEN.

UNiverfis & Singulis has nostras patentes
litteras inspecturis fidem facimus, & attesta-
mur, Nos ANDREAS PASTA V. Prior
Almi Collegij Illuf. Phyficorum Bergomi,
una cum Illuf. Collega nostro JOANNE
DE ALEXANDRIS pro tertio deputato ad
licentiandos Chirurgos juxta ordines dicti
Collegij, ficuti hodie coram Nobis compa-

B

ruit

ruit D. Bartholomeus Ruspinus Filius D.
 Andreae de Grumello Zancorum, & reve-
 renti petiit se a Nobis admitti ad exercitium
 totius artis Chirurgiae offerens se ad examen,
 produxitque fidem ejus Baptismi firmatam a
 R. Paroco dicti loci, nec non attestationem
 pro bonis ejus moribus, & frequentia ad Sa-
 cramenta facta ab Adm. Rdō. Paroco Ven.
 Hospitalis majoris Bergomi, in quo dictus
 Ruspinus posuit rudimentum, & inde mag-
 num accepit incrementum peretiae. In dicta
 arte Chirurgiae. Admissa ergo ejus instantia, a
 Nobis diligenter examinatus fuit circa atti-
 nentia ad praxim, eumque in respondendo
 casibus propositis, & resolvendo objecta per
 Nos facta optime se gesserit, datis secretis suf-
 fragiis ad exercitium totius artis Chirurgiae
 omnibus votis admissus fuit. Quare, cum
 etiam juramentum praestiterit in manibus in-
 frascripti Cancellarii de non contraveniendo
 Bullae Ssmi: Papae Pii V. ii Martij 1566,
 aliisque

aliisque ordinibus hujus Collegii, quorum tenoris, et Bullæ a dicto Cancellario prædictus licentiatus fuit certior factus, ut digno tandem laboris, & virtutis suæ præmio decoretur, eidem Dnō: Bartholomeo has nostras patentes litteras, & privilegiū manu nostra subscriptum, sigilloque almi Collegii nostri roboratum per dictum Cancellariū dari jussimus.

Datum Bergomi ex Aula Almi Collegii nostri die 18 mensis Junij anni 1758.

*Andreas Pasta pro Prior,
Joanne De Alexandris.*

*Zucciniarey de Euccatellis,
Coll. Cancellar, &c.*

aliquo ordinis huius Collegii, quoniam
tenoris et huiusmodi Cancellario
licentiam eius contra, ac digno tra-
diti labori, de virtute huiusmodi deo-
dona Dni: Bartholomaei huiusmodi pater-
nitatis, de privilegio manu nostra sub-
scriptum, ad illud alium Collegii nostri roboratum
per dictum Cancellarium huiusmodi

Item Berghoni ex Alia Alia Collegii nostri
die 18 mensis Junij anni 1758

Adhuc P. P. pro Prior

Joannes De Alexander

Reverendissimi de Barchinensi

Coll. Cancellarius Et

T R E E T H I S E



T E E T H.

TEETH are given us by Nature, in order to cut, break, and grind the necessary *aliments*, and to give a stronger and a more articulate sound to the voice.

What is chiefly to be considered in the Teeth, is their *texture*, *number* and *figure*; *their exact order* and *arrangement*; and the *time* they begin to appear.

In the Teeth we may distinguish three parts, namely, the body, or crown of the

Tooth, which appears out of the gums; the middle, comprehending the space covered by the *gums*, and called the *neck* or *collar* of the Tooth; and lastly the *root*, that lies buried in the *socket*.

We find in a Tooth three different substances. The first surrounds and *covers* the body or *crown* of the Tooth; it is thin, but grows thicker by degrees, as it draws near to the extremity of the *crown*. This substance is so close and hard, that no impression, either with a file or any other sharp instrument, can be made on it but with great difficulty and trouble; its colour is that of a pearl white, almost peculiar to the Teeth.

This cortical substance is what we call the *enamel*, or vitreous part, and it forms itself before the Tooth comes out; it grows stronger and finer until the age of about 20, after which time it begins to wear off, by continual use; and so liable is it to decay, that we often see persons of a middle age without the least *enamel* on their Teeth: such a thing frequently happens in old people. But altho' the *enamel* be lost, or destroyed, still the
Tooth

Tooth is not so liable to decay as one may imagine; for we find many Teeth firm and sound in their internal substance, notwithstanding they have been deprived of their outward *coat* for many years: however, when once it is gone, the Tooth lies more exposed to the impresson of heat and cold, and to be acted upon by any thing acid and sharp; and as for the *enamel*, the loss of it can never be repaired*.

The second substance is not so close as the former, and consequently less hard; 'tis of a dusky white colour, and of the same nature as that of all human bones, altho' somewhat harder; it begins immediately under the *enamel*, in the body of the Tooth, and covers the neck, together with the whole root.

The third is that which forms the most internal part of the Teeth, and is called the

* Ruysh, the anatomist, declared he could trace the arteries into the hardest part of the Teeth; Lewenhoeck believed the fibres of the *enamel* to be so many vessels; Monro asserted he had frequently injected the vessels of the Teeth in children, so that the inside of the cortex appeared perfectly red.—But the ingenious Mr. John Hunter, and other late writers, are of opinion, that the *enamel* is not vascular, and that no injection can ever reach it.

BULB; it is soft in regard to the former, but very close and firm, if we compare it to the marrow of the other bones.

The outward covering or *enamel*, and the bony part of the Tooth, are not susceptible of the least sensation.

The reason why Teeth are affected by something acid or sharp, is owing to a certain *tremor* that communicates, and, as it were, thrills thro' the nerve in the inward part. If this nerve is left uncovered by a *caries* of the bony substance, then we are tormented by the most excruciating pain.

Men at 20, and about three years after, have generally 28 Teeth, 14 in each *mandible*, or jaw.

This number encreases to 32, when the four Teeth called *dentes sapientiæ* appear; but as those in some persons come out sooner, in others later, and in some never, we may *justly* say, that the number of Teeth, at a medium is thirty.

Some writers were formerly of opinion, that men had 32 Teeth, and Women 28; but

but inspection may plainly evince the absurdity of this notion.

All the Teeth that exceed the number of 32, may be reckoned as *supernumerary*, they generally push out between the *incisores* or *fore teeth* of the upper jaw; and in such case the *incisores* are increased in their number.

These *supernumerary* Teeth resemble very much the lateral *incisores* of the upper jaw.

And it happens that the *incisores* also of the lower jaw, and the *molars* or grinders themselves, have been multiplied by intervening *supernumerary* Teeth.

Teeth are generally divided into three classes, viz. the *incisores* or cutting Teeth, the *canini* or dog teeth, and the *molars*, or grinders*.

* Mr. Hunter varies this division. He retains the name of *incisores* to the four fore Teeth; but he distinguishes the *canini* by the title of *cuspidati*, the two next to these which have usually been called *molars*, he names the *bicuspidates*, and allots the name of grinders only to the three last Teeth on each side. Vide Natural History of the Teeth, page 49, *et seq.* by John Hunter, F. R. S. Surgeon extraordinary to his Majesty.

The *incisores* are eight in number; four in front of each *mandible*. They are called *incisores*, because their business is to cut the *aliments*; for which purpose their outward form, at the extremities, is peculiarly and wonderfully adapted. On the outer surface, next the lips, they are a little convex, and on that next the palate, concave. The two *incisores* in the middle of the upper jaw are longer, and often broader than those on each side; or any of the other *incisores*; for indeed the lateral upper *incisores* exceed the lower in magnitude. The two middle upper *incisores* may be called the *greater*; those on each side, the lesser; and the four of the lower *mandible* the *small incisores*. These Teeth describe a kind of semicircle.

The *canini* are four in number*; they lie one at each side next the *incisores*, between them and the *molars*, in both jaws.

* The eminent Practitioner above quoted, remarks of these Teeth, that we may trace in them a similarity in shape, situation and use, from the most *imperfectly carnivorous* animal; which we believe to be that of the HUMAN SPECIES, to the LYON, which is the *most perfectly carnivorous* of the animal creation.

These

These Teeth are rather longer, more round, and less cutting than the *incisores*.

Their use is to part things that are of a solid nature; in regard to their structure, they appear to be very proper, not only for cutting asunder any piece of solid food, but also for keeping it firm in the time of mastication. They are called *canini* because they are very like the Teeth of a dog. The upper *canini* are also known by the name of *eye-teeth*, because it was anciently believed, that they had a kind of connection with the eyes, and that, by drawing any of them, the sight was endangered; but daily experience has clearly demonstrated, that such a connection and danger are merely imaginary.

Immediately after these come the *molares* or grinders. They are twenty in number, five on each side of both jaws.

The two first in each row, or the nearest to the *canini*, are the small grinders, the others the large.

They are so called because they are thicker, blunter, and more flat at their extremities than

than the rest. They operate like millstones to bruise and grind the food.

Their figures are almost square. The broad end, or top of each grinder, is divided into several little *eminences* and *cavities* in such a manner, that when the jaws meet, the *eminences* of the upper grinders are received into the cavities of the lower, and so *vice versa*.

We cannot help admiring with astonishment the works of *Providence*, in the figure and exact disposition of all the Teeth, which can never be too closely examined.

In order, therefore, to form a better idea of this admirable contrivance, it will be necessary to observe, that the lower jaw is a kind of a *lever*, resting itself at the extremity, where it joins by *articulation* to the *temporal bones*; the *aliments* are the resisting bodies, and the *elevatory* muscles are the acting powers to overcome that resistance, by raising the jaw.

The grinders, which are rather blunt, stand nearer the centre of the motion, and
confe-

consequently press more forcibly than the rest; and this is the reason, that when we would bite something remarkably hard, we generally place it between the *molares*; the *canini* and the *incisores* can never act with so much force, being farther removed from the centre of motion, but their want of power is sufficiently compensated by their form.

In speaking of the name and *characteristical* figure of the Teeth, enough has been said concerning that part of the Teeth which appears out of the gums, viz. the *crown*; therefore we shall proceed to their neck.

Of the Neck of the TEETH.

The *Neck* is that part of the Tooth covered by the gums, and a bony substance, which, as we said before, is of a dusky white colour.

In that part of the *neck* which joins to the gums, we find some little inequalities, or rather wrinkles, that cause some small vessels belonging

belonging to the gums, to adhere more closely to it; by this means, not only saline particles are prevented from getting into the *sockets*, but the Tooth is also rendered so firm and strong, as to secure it from being shook or loosened.

Of the ROOT.

The *Root* is that part which is buried in the *socket*, a continuation of the same substance and colour with that of the neck. It is covered by a membrane exactly similar to that which lines the *socket*.

The root of each Tooth is generally longer than the body, and is thereby rendered more able to bear any strain or violent impression, occasioned sometimes by chewing, gnawing, or breaking bodies of a hard nature.

In every root we find, towards the extremity, a little hole, which is a passage to the internal substance, or the *bulb* of the Tooth.

There

There is also a little branch of an *artery*, a small *vein*, and a nervous *filament*. This hole is closed up in old age, and then Teeth lose their *sensation*. Various are the figures of roots; and in each species of Teeth there is a particular one.

In all the *incisores* there is but one root to each Tooth, which decreases gradually, and ends at last in a point.

The *canini* likewise have generally but one root; but there are some with two, quite divided through all their extent, and others only at the extremities; such Teeth however, are very uncommon. The sides of the roots of the *incisores* and the *canini* are flat, and rest upon the partition of each socket: which mechanism fixes more firmly these Teeth in their sockets: their necks and bodies being also flat laterally, and applied to the contiguous Teeth, they receive mutually a strong and considerable support, by being so well adapted to each other.

The small grinders, namely, those that come immediately after the *canini*, on each side of both jaws, have generally but one root; some are found with two, and some even with three; but such a case is very rare. The small grinders that have but one root, have it always flat on the sides, and therefore it supports itself in the same manner as the *incisores* and the *canini*.

The number of roots in the large *molars*, both in the upper and lower jaw, is very uncertain.

There are some large grinders, with one or two flat roots, and each root seems to be formed out of two joined together, distinguished only by a little kind of channel, which rises immediately from the *crown* of the Teeth, and appears through all their extent, in order to mark out the division. In other large grinders there are three, four, and, sometimes, five roots, quite separate from one another, extending themselves in a large compass; for which reason such Teeth are deeply rooted, and stick more closely to the *socket*.

Hence

Hence it happens, that the *molares* are not so easily drawn out of their socket, whenever the adjoining Tooth is wanting.

The last grinders, otherwise called the *dentes sapientiæ*, have fewer roots than the two Teeth that precede them, and their body is not so thick. They have generally but two roots joined to each other, which very seldom appear separate in all their extent, or even at their extremities; there have been some notwithstanding, with three, four, and even five roots, very plainly divided one from another; but this case is very rare.

The *crown* or body of these Teeth is almost all covered by the gums. Sometimes the roots of the large grinders are crookedly inclined towards the internal part of the *socket*, and sometimes towards the external. Some are in an undulating form, and some are bent one against the other, or laid across altogether, and therefore it is a very difficult task to draw a Tooth of this kind. For if ever one of these roots bend with a point quite opposite to another root that
C may

may be lodged in the little *cell* of the next *socket*, then these two roots will form, as it were, a pair of pincers, and gripe with their their extremities the bony substance that parts one cell from another; and consequently in drawing a Tooth with those roots, we are forced either to tear the bony partitions of the cells, or if this should resist, then either one or the other, and sometimes both these crooked extremities must break; and in both cases it may be of very bad consequence. There is also great danger in drawing the upper *molars* lest you should tear with the Tooth the bottom of the socket, together with a very thin bony *lamen* or scale that parts it from a cavity called the *maxillary sinus*; for then the mucus membrane is unluckily torn; and this gives occasion for *inflammations* and *ulcers* in that membrane, and may even produce a *cancerous* ulcer, as it has happened in many cases.

Every root has a hole that communicates with the cavity in the middle of the crown; which cavity in the grinders is divided into
as

as many small sinuses as there are little eminences on the base, which is lined with a membrane that serves as a sheath to the small blood vessels and nerves, that are included in the internal part of the Tooth. At the extremity of each root there is, as we said before, one or more little holes that receive nerves, *blood vessels*, and perhaps absorbent vessels, which by their connection together, form what we call the *chord* of the Tooth. This *chord* passes through the cavity of the root, and conveys a proper nourishment to the substance of the Tooth; and as it draws nearer the crown it becomes thicker, by means of the membrane that lines the cavity.

The *incisores* and *canini* have their nerves from a *branch* of the fifth pair, called the upper *maxillary*, which insinuates itself into the orbital canal, from whence it comes out, to be distributed on the face, and in its way sends off filaments for all the roots of these Teeth.

These *molars* likewise receive their nerves from the same *branch* through small

holes, formed in the hinder part of the external lateral surface of the upper *maxillary* bone.

The *veins* and *arteries*, as they always join with the nerves, communicate themselves the same way to the Teeth. These *arteries* are *branches* of the external *carotids* and the veins of the jugular.

The nerves of the lower jaw are from another branch of the fifth pair, called the inferior *maxillary*, which enters into a canal on the inside of the angle of the lower jaw, and is continued on each side to the chin, a little below the roots of the Teeth. In passing along this bony canal, the nerve sends off filaments to the roots of each of the *molars* and *canini*, and is then divided into two branches, one of which comes out of a hole of the bone in the chin, called the mental hole, to be then distributed to the chin and muscles of the under lip.

The other branch passes on to the *symphysis* of the lower jaw, and is distributed to the roots of the *incisors* and *diploe* of the bone.—

The

The arteries which are sent to the Teeth of this mandible, have their rise from the external *carotid*, and follow precisely the course of the nerve through this bony canal, accompanying it through the whole of its distribution. The veins arise from the external *jugular*.

It therefore appears from what has been said on this subject, that a tooth-ach in the *molares* or grinders, must be more exquisitely painful than in any of the other Teeth; for as the *molares* are furnished with a greater number of roots, and each root has its artery, vein and nerve, it therefore follows, that a Tooth of five roots must have fifteen sensitive bodies; which if exposed to heat and cold, by a cares of the bony matter, will *cæteris paribus* produce a greater quantity of pain, than that of a Tooth with a single root.

Of the SOCKETS.

The Sockets are cavities formed in the jaw-bones, for the receiving and fixing the Teeth; but these will be better understood

by giving a previous idea of the mandibles in general, which have so great a share in forming the countenance; for if the Teeth be wanting in either jaw, the lower will be brought so much the nearer to the upper, by the strong action of the temporal muscles, as to make the chin and nose approximate one another, and spoil the beauty and symmetry of the face.

The mandibles may be considered as two bony arches lying parallel to each other; the lower jaw moving on its *condyles*, and the upper, which is properly composed of two bones that are firmly united before, and along the palate, so as to form a considerable part of that bony arch. This mandible is firmly attached to the other bones of the face; it has a cavity on each side, directly above the roots of the grinders, which is sometimes opened by drawing Teeth with long roots, that have pierced into it.

The lower jaw is likewise composed of two bones, especially in the infant state; which are firmly united at the *symphysis* of the chin,
so

so as to make but one bone in adults. This bone is remarkably hard in the lower part, altho' somewhat spongy on its upper, in order to afford a more convenient bed for the Teeth: It has no cavity, save the alveolar canal, which runs under the roots of the Teeth, and transmits to them their blood-vessels and nerves.

After this general idea of the structure of the mandibles, we shall now treat of Sockets in particular; which are cavities formed by the Teeth in the *diploe*, or spongy substance of the jaw bones, divided into as many little *fossulae* as there are roots of each Tooth. These little cavities are lined with a thin, elastic, scaly substance, not so hard as the other parts of the bone, and sufficiently pliable to become a perfect mould for the Teeth, which in cases of violent compression or shocks, gives way, so as to prevent, in some measure, the Teeth from being loosened or broke.

We do not find in the jaws of infants the Sockets intirely formed; at least they do not appear so; for there are but ten or

twelve in each *mandible*, and these not deep: all the Sockets in thickness are not alike, for each species of Teeth have their particular ones.

The *incisores* of the upper jaw have their Sockets thinner than those of the other Teeth, and the *canini* theirs stronger, consequently thicker in the *incisores*, or even the small *molars*. The first large grinder has its Socket stronger than the second, and last grinder.

In the *incisores* of the lower jaw we find their Sockets thinner than in all other Teeth of that *mandible*; and this is the reason that those Teeth are more liable to shocks, and it is likewise easier to draw them. The *canini* have their Sockets thicker than the *incisores*, and the small grinders; but the small grinders have theirs thicker than the *incisores* of this jaw. The first large one of the *molars* has not the Socket so thick as the second and third; which last one has it thicker, because of the *apophysis coronoides*; and that is the reason why it proves generally very difficult to draw.

These

These Sockets, when Teeth are drawn, or naturally fall, are generally destroyed in a very short time, insomuch that it is almost impossible to perceive any marks of them, as we daily see in examining the *mandibles*. But if ever in drawing a Tooth some part of the Socket was to be torn, then the sides would be found not quite so thick, nor so firmly joined in that place. The Sockets are outwardly covered, and lined inwardly, with a membrane or *periosteum*, common with the root of the Tooth, it is a continuation of the *periosteum* that covers the other bones, and of the same membrane that lines the internal part of the mouth.

Of the GUMS.

The fleshy part that surrounds the socket, is called the Gums; these are made of a hard substance, rather *fibrous* than glandular. They are penetrated and moistened by different vessels, namely, by *veins, arteries, and lymphatics*. The texture of the Gums is of a *coriaceous* nature, with fibres interwoven like a hat's felt, very close and *elastic*, of a pale
vermilion

vermilion colour; all the border of the sockets in both inward and outward side of the jaw, is covered by the Gums, which insinuate between all the Teeth, and adhere so closely to the neck of each of them, as to prevent any thing acid or sharp from touching the sockets. Before the Teeth come out, the gums, are all of a body, without the least separation; and as the Teeth begin to shoot out, they pierce the Gums, and make so many holes as there are Teeth in the *mandibles*.

The Gums are joined to the jaws by the Periosteum, which they every where cover. The outward covering of the Gums extends itself from the crown or body of the Teeth over the cheeks and lips, and seems in every respect to be a continuation of the same membrane.

The inward Gums of the upper jaw, go from the internal part of the neck of the Teeth, as far as the circumference of the roof of the *palate*; and those of the lower *mandible*, as far as the circumference of the basis of the tongue.

When

When a Tooth happens to fail, the Gum covers the orifice of the socket, which being soon shut up or destroyed, the external part of the Gum joins with the internal one, and they unite themselves very closely together, becoming so hard and firm a body, that we see men, who, after having lost all their Teeth, bruise the aliment with their Gums, altho' they cannot cut or mince with them: in this case the Gums re-assume the very same figure they had before the Teeth appeared.

The Gums no doubt are the preservers of the Teeth, since they keep them quite firm in their sockets, and save them from being touched by any thing heterogeneous or pernicious, which might produce the most painful disorders in the Teeth, and even a total destruction of them.

The Gums, when properly ranged, contribute very much to the ornament of the mouth; for as these are of a vermilion cast, and form a kind of a *crescent*, or halfmoon, around the enamel of each Tooth, they set off in a more elegant manner the whiteness of the
Teeth,

Teeth, when we have occasion to shew them by laughing, singing, &c.

Of the GENERATION *of* TEETH.

Nature, in forming these bones, seems to deviate intirely from those laws that she has established in the production of all other bodies, and to chuse a peculiar uncommon method in this generation.

The greatest part of natural productions have their beginning in their roots; but a Tooth, on the contrary, does not begin to form its root till the body is perfectly finished. The first substance that begin to appear in this body is not the internal part, as one would imagine, but the external one, the farthest from the root, and what is called *Enamel*. This substance, in its beginning, is nothing but a mucus, soft past, which acquires insensibly so much firmness, that it becomes at last a bony part, and excels all other bones, (as we have shewn in its proper place) in point of hardness and whiteness. When once this scale or bony coat is formed, the Tooth assumes directly a
proper

proper figure, and its inward part begins to be filled.

The germ of the Teeth, like that of other bones before ossification, is composed of a tasselated mucus, separated and divided into a number of little cells, which are afterwards filled up with calcareous or bony matter, and constitutes the solidity of the bone.— This germ is contained in little lodges or *cells* of the socket, which it stretches in proportion as the bulk of the Tooth augments and spreads; at the same time its membrane increases, and takes hold of the roots, and forms the *periosteum* that surrounds it.

The body of the Tooth being quite finished, the root takes then its due form, and as it grows stronger, it lengthens by degrees until it becomes of a proper length; the extremities grow firm and bony, leaving, however, a free passage to the vessels that run through the cavity of its root, and penetrate with their nourishing juices to the very inward body of the Tooth. While the root grows thicker and stronger, finishing itself within

Within the socket, the body of the Tooth rises towards the Gum, and attempts to come out. It begins by dilating the partitions of the socket, and being level with this bony border, it cuts immediately the *membrane*, in which it is inclosed, then the other *membrane* that covers the socket, and at last the gum: In this manner shoot forth the Teeth.

The partitions of the sockets will lengthen in proportion as the Teeth draw nearer the Gums; but although in lengthening they are compressed and grow harder, still they have an elasticity, by which they render the Teeth safer and stronger against the impression of any accident.

The same œconomy we find in the *molars*, that are furnished with more roots, and consequently have more *cells* in their sockets, which always multiply at the same time, when the roots appear, as was said before.— It would be natural to think that in those Teeth that have but one root, their sockets should be found greater in diameter than the root itself, as the socket has taken the form
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and figure of the body of the Tooth, which is first of all formed in it, and is always of a larger diameter than the root; but it is never so, on account of the above-mentioned *elastic* force belonging to the partition of the socket, inasmuch that as soon as the body of the Tooth is out of the socket, the socket contracts, and adapts itself, by degrees, to the figure of the roots, holding the Tooth so firm as if it were fixed in a vice or screw.

Of the ERUPTION of the TEETH.

Children, when they are brought into the world, have generally no Teeth; I say generally, because some have been found with two, three, and even four *incisores*; two in the upper jaw, and two in the lower one; but these cases are not to establish a rule, being only an exception.

Teeth appear sooner or later, according to the weaker or stronger constitution of the child; there have been some of them who have cut their Teeth when they were two or three months old, and sometimes not before

fore they were a year or fifteen months; but for the generality, in the fifth, sixth, or eighth month after their birth, the first Tooth begins to appear. The two small *incisores* of the lower jaw are the first that come out.

The large *incisores* of the upper jaw appear almost at the same time; then two appear in the lower jaw at the side of the former, and then other two in the upper jaw: this is the general order in which the *incisores* are seen. When the child is eleven months, or a year old, the lower *canini* appear almost always at the same time; and a few days after, the upper *canini* likewise shoot forth together, and these cause greater pain than the former.

When children are about sixteen or twenty months old, the two small lower grinders come out, and in a few days after the other two of the upper jaw; the other four *molars* do not generally appear until the child is two years old, one at each side of the *mandibles*. — These make twenty in number, and are called *Milk-teeth*, the child remaining in this

this situation until about the sixth year of its age.

The order we have described, is not always exact; for we often see the small grinders shoot forth sooner than the *canini*, and the *canini* quicker than the lateral *incisores*. At the age of five or six years, the other four *molars* appear next to those lately come out in each mandible. Towards the eleventh or twelfth year, four other *molars* come out in the same order, as do likewise four in the 17th or 18th, which in all make 28, viz. eight *incisores* or fore-teeth, four *canini*, and sixteen *molars* or grinders. With these Teeth we generally continue until the four last *molars*, called *dentes sapientiæ*, appear; the exact time of which is very uncertain, though usually it happens at the age of 25, or even 28. Nor are there instances wanting of their not appearing before the age of 50, when they are for the most part accompanied with tumours and defluxions on the neighbouring parts, which proceed from the pressure caused by the crown of the Tooth on the sides of the socket, and on the fleshy and

D membranous

membranous point of the gum, which at that time of life is become more hard and obdurate. At the age of seven or eight years, the *incisores*; the *canini*, and the small *molars*, are shed in the same order as they did appear. When these are gone, as many stronger and more beautiful Teeth take their place,

It is remarkable, that if one of the *Milk-teeth* is drawn before it is loose, we find in it a root as firm as that of the *second* Tooth; but on the contrary, if it is drawn when it is loose, there is no root at all. This has given rise to a variety of opinions, concerning the destination, or rather destruction of the roots of the *Milk-teeth*. It is imagined by some; that they are entirely consumed by a flux of acid humours, which absorb the calcareous matter of the roots, and so decompose the constituent parts; while others suppose, that these roots are incorporated into the substance of the *second* Teeth. But as these suggestions are not supported by the least appearance of fact, we shall not therefore take up the time of the reader, to prove the contrary of them;

them; but shall only observe, such an acid humour could not exist without destroying all the Teeth; and that such an incorporation into the substance of the second Tooth has never yet been found. It appears by several of the later discoveries made in anatomy, that many parts necessary to the body in the embryo and infant state, are totally lost and obliterated in that of adults; and that those parts which are become useless and redundant in the system are absorbed, and taken up by the lymphatic vessels, to be afterwards thrown out at the different emunctories of the body. That this is in reality the case with the roots of the *Milk-teeth*, may be fully ascertained by a variety of similar facts, which the nature of this work will not admit to enumerate.

Sometimes, though seldom, the large *molares*, and even the *dentes sapientiæ*, will shed; as happened lately to a Lady who was tortured with the most exquisite pain in one of the *dentes sapientiæ*, on the right side of the lower jaw. I felt the Tooth quite loose,

which I drew with my fingers, but found no root to it. This I concluded to be owing to another Tooth lying under it; which I soon perceived, on further examining of the socket. As the excruciating pain still continued, the Lady could not be persuaded that there was another Tooth to come out; but that the root of the former was left behind: however the appearance of a new Tooth, not long after, fully convinced her, that the pain was entirely owing to the smallness and firmness of the socket, which retarded the egress of the young Tooth, and obliged it in a manner to grind its passage out.

An opinion prevails, that there is a very great risque in drawing *milk-teeth*, before they are loose; but in reality, there is not the smallest danger: and indeed, when they are carious, or any other way painful, it is absolutely necessary to draw them, to prevent, as much as possible, an inflammation of the gums and adjoining parts, which might destroy the germ of the second Tooth.

It is sometimes necessary to draw those Teeth that lie across, or ride upon one another,

ther, (a very disagreeable sight) in order to give a more exact and uniform arrangement to the rest. This defect of order in the *canini* and *incisores* in general, proceeds from an extreme narrowness of the jaws. But the operator must be very circumspect in examining every circumstance relative to the Tooth and socket, before he draws a *milk-tooth*; for if a part of the socket should be broke and give way, the second Tooth will always come out in an irregular manner,

*Disorders incident to Children in Teething,
and the manner of treating them.*

The eruption of Teeth in Children, is often attended with the most fatal consequences, by exciting fevers, convulsions, gripes in the intestines, acidities in the stomach, and finally, by introducing a great degree of irritability in their tender constitutions, so that they become more liable to a greater variety of disorders.

Children suffer in teething, first, in proportion to the delicacy and sensibility of their

constitutions: Secondly, to the number and figure of the Teeth that push out at the same time: Thirdly, to the state of the gums, which in some children is found to be more tense and liable to inflammation than in others.

Children who are originally of a delicate habit, or who have been rendered so by milk of an improper quality, or by any other cause that impairs their digestion, and produces acidities in their stomachs and intestines, are extremely liable to convulsions in teething; on the contrary, children of a strong, robust make, whose food is converted into proper nourishment, are less subject to convulsive disorders, but are liable often to a degree of fever, which in some measure facilitates the eruption of the Teeth. The number and figure of the Teeth that shoot out at once, will greatly increase the pain; for the blunt flat *molars* will meet with a much greater resistance, and a greater degree of laceration, than the sharp-pointed *incisors* or *canini*.

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At the same time the *canini* will prolong the pain, from their wedge-like figure, which is continually dilating the socket and gum, till the Tooth has completed its growth.

From this great difficulty the Teeth have to cut the gums, many mischiefs are frequently produced; for as inflammation is always the consequence of laceration and pressure; That, by going too far, occasions frequently swelled glands about the throat and neck, which sometimes suppurate; and even ulcers in the gums, and neighbouring parts, have been produced. In order to mitigate, and in some measure prevent the disorders arising from teething, it will be necessary to consider well what has been already said in regard to the tendency of nature to inflammation in strong and robust children, and to convulsions, gripes and looseness in the weak, tender and delicate. In the first case, the degree of fever and inflammation may be lowered, by keeping the nurse upon a low diet, avoiding animal food, spices, or whatever tends to stimulate and increase the circulation; fre-

quent, but small doses of rhubarb ought to be administered to the nurse, which will gently purge the child, in the safest and most commodious manner; in the mean time, if the gums are much swelled, scarifying them with the point of a lancet, so as to make them bleed at several parts, will empty the distended vessels, and remove the tension from the inflamed gums; and where the fever runs high, even bleeding with leeches or the lancet will be of great service. ✓

In the other case, where convulsions are so often the consequence, we must endeavour to prevent these frightful symptoms by every method that may tend to strengthen and confirm the constitution; such as having a strong and healthy nurse, taking care that she lives on the most simple and nourishing food, giving the child a wholesome country air, with a good deal of exercise, and exhibiting small doses of aromatic infusions of the bark, powder of tin, or such-like.

Where a looseness and gripes prevail, it would be necessary to take every method to prevent that tendency to acidity, which
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mostly takes place in infants whenever digestion is any way disturbed. This is best done by giving frequent but small doses of the absorbent powders conjoined with aromatics; and perhaps rhubarb, or more astringent simples, with opiates, may be found necessary.

In children of relaxed habits, whose gums are loose and flabby, there is very little tendency to inflammation. In that case, applying mild astringents (such as a decoction of rose buds in vinegar) to the gums by the nurse's finger, will help greatly to brace up, and facilitate the eruption of the Tooth. But in all cases, where the symptoms are troublesome, and the Tooth tardy in coming out, the only effectual means is to make a free exit for it by incision, and to cut the gum quite down to the Tooth; and indeed where-ever a Tooth seems ready to appear, and the child is pining and suffering much, we ought to recur immediately to incision, and in that way remove the pain that is occasioned by the distraction of such sensitive parts.

Sometimes,

Sometimes, where the gum has been already cut, and the Teeth very slow in growing, the parts unite, and a *cicatrix* is formed above it; here we should again cut the gum, so as to lay the Tooth quite bare.

In some strong and healthy children, a number of Teeth will push out at the same time, by which means the symptoms are greatly aggravated: here also we should give a free exit by incision, then gentle emollients should be applied to the gums, and every thing that is irritating should be avoided.

Particular attention should be paid to the least sore or ulcer that may be formed about these parts, lest they destroy the germ of the subsequent Tooth.

Of the DISORDERS of the TEETH.

The Teeth are subject to a variety of disorders, which may be divided into those arising from internal or external causes. The first have their rise from the juices being contaminated

taminated by scurvy, scrophula, venereal infection, or whatever induces a cachexy of the humours.

Also it is observed, that women are more liable to tooth-achs and fluxions upon the gums, during the time of pregnancy, than at any other; perhaps from the particular sympathy of nerves, that is so peculiarly shewn upon the stomach, &c. at that period.

All disorders in the gums infect the Teeth, and are the cause of long and painful suffering. Teeth generally fail by some of the above causes.

The external causes are also many. The general ones are, the use of aliments too hot or too cold; the different impression of air; all shocks given to the Teeth, which affect the nerves; the vapours that arise from the stomach and lungs, and leave a noxious and disagreeable slime on the Teeth; any particles of food that stick between the Teeth and putrify; keeping the head uncovered and exposed to the air; sleeping bare-headed; as
likewise

likewise the excessive use of smoaking and chewing tobacco; the many improper remedies also that are made use of to keep the Teeth clean, and the *caustics* applied in order to mitigate the pain, are always sure to destroy those they unluckily touch: hence we may see of what importance it is, never to make use of any remedies but what are approved of by a skilful person. Sugar, when used immoderately, is another enemy to the Teeth; but one of the most dreadful destroyers is *mercury*. One ought, therefore, to be extremely cautious in using it. All *mineral* exhalations are also very pernicious, as we see by daily experience in all those persons who work in any of the *quicksilver*, *lead*, or *copper* mines, &c. Such people generally have their Teeth corroded, divested of their *enamel*, and sometimes entirely wasted away by the *corrosive* particles exhaling from those *minerals*. Among the external causes, however, negligence may be reckoned the first; for let the lymph be ever so pure, and digestion ever so regular, there are always some viscid exhalations that are apt to settle upon the Teeth. These can easily be removed;
but

but if neglected, may prove the cause of many mischievous disorders, as we shall shew hereafter.

It is not my intention to give my reader a list (as many have done) of the various disorders incident to the Teeth, but to comprehend them under two single articles; namely, *erosion* and *caries*; and I shall take notice likewise of what is commonly called the *tartar*.

Erosion is a disorder that renders the Teeth rough, and worm-eaten. It affects only children, either when the first Teeth shoot forth, or when the second ones appear. The original causes of these disorders are the small-pox, the measles, and all those disorders that contaminate the juices. It penetrates more or less, according to the hardness and firmness of the Teeth; and therefore if the disease should seize the child when his Teeth are not sufficiently firm and ossified, it must be attended with bad consequences, meeting with little resistance in the parts not sufficiently ossified.

But

But if it should come on when the *milk-teeth* are shedding, and the new ones appear, it will be of no harm to the Tooth that has not as yet come out. The *enamel* of the Tooth can never be hurt, but when wrapt up in its membrane, as it is then nothing else but in a state of soft mucus, which being rendered acrid by the same cause, the *enamel* will be entirely consumed. Whenever this disorder appears, it can only be of detriment to the parts that are not sufficiently firm and ossified. Children that are affected *in utero* with the scurvy, the venereal disease, &c. will bring along with them the seeds of those disorders, so pernicious to the Teeth, if proper means are not made use of to prevent it. But if the original causes shall be thoroughly eradicated, the *milk-teeth* will only suffer, and those that succeed them will be found quite untouched.

In order to purify the constitutions of such children, it will be necessary to make use of those means proper to produce a good chyle, and to correct the state of the juices,

juices, which is the province of the Physician.

It is necessary likewise to choose a good nurse, whose milk is not thick, for then it is not so easily assimilated by the infantile powers; nor too serious, for then it wants the proper substance, so necessary to form a good nutritious juice, the want of which prevents bones from growing in their natural form.

The child should be kept in a good and pure air, and all occasions taken to give it due exercise in the arms of the nurse, &c. These are precautions that will prevent this disorder from affecting children. It is worth observing, that if the erosion happens to come after the child is weaned, that is to say, when he is from two to six years of age, a methodical way of living, proper food, and good air, will be the means to prevent it. Many have thought, without reason, that this disorder could affect nothing but the body of the Tooth, and that the root was not susceptible of it. It is true, that
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the roots do not appear so rough and worm-eaten as the body of the Tooth, but still they are shorter, more crooked, and of an imperfect form, which they could never get but from this tendency of the humours to *erosion*, or from the *rickets*, which is a disease so fatal to children, and proceeds from the same causes as the *erosion*; it also proves very pernicious to the Teeth, and all other bones.

Of the CARIES.

As soon as the Teeth make their appearance, the *caries* begins to attack them, and consequently they stand in need of proper assistance. One should think that their hardness would render them less susceptible of it; but they are even more subject to a *caries* than all other bones: It is easy however to trace the causes of it. As Teeth are of a closer texture, their vessels are more compressed, and therefore obstructions are more easily occasioned; and also when cold happens to strike them to a certain degree, or when the
bony

bony fibres suffer by some extraordinary effort. If the juices that circulate through the small channels of the Teeth are too thick, or are any way vitiated, the Teeth will thereby be more liable to be contaminated, but always in proportion to the impressions they shall receive.

Teeth that have been affected with the erosion at the same time they were forming, are more subject to be carious, on account of the bad condition of their vessels; and therefore are more difficultly preserved.

Various are the species of *caries*; almost every part of the Teeth is affected by it, and both internal and external causes produce it. A *caries* may be divided into soft, superficial, deep, and dry; it attacks the root, the *neck*, or the *crown* of the Teeth. The *caries* that proceeds from internal causes, namely, the scurvy, &c. generally affects the root of the Tooth, often the internal surface, sometimes the external, and even the inward cavity of the body.

Such a *caries* is more difficult to be known, than that which proceeds from external cau-

ses, chiefly when it attacks the *root* or *neck* of the Tooth; for as the former is buried in the sockets, and the latter is covered by the gums, one cannot perceive it; and therefore we can only conjecture, that there is a *caries* from the torturing pains that are produced.— But these conjectures are often false; for the pain may proceed from some irritation affecting the *chord* of the Tooth, or the *periosteum* that covers and lines the root: the consequences therefore arising from this sort of *caries* are very bad, for it is mostly necessary to draw the Tooth itself.

The *caries* that proceeds from external causes, is visible; and, consequently, by admitting of the necessary operations, more easily removed. A *caries*, the longer it is allowed to run on, the deeper it goes, and is therefore the more difficult to cure.

The soft and dry *caries* are not dangerous, if their progress is quickly and properly stopped.

Every *caries* of the Teeth is more or less difficult to be eradicated according to the part
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it affects, as that renders the operation more or less difficult.

Although Teeth begin to be affected with the *caries* as soon as they appear, still it must be allowed, that the time in which they are more subject to it is from 25 to 50 years of age.

It is worth remarking, that when a Tooth is affected, be the *caries* on that side which rests on another Tooth, it also affects the contiguous one; from which we may argue, that the particles exhaling from the *carious* Tooth must be corrosive. This happens, not only in the lateral, but also in the opposite Teeth; for when a *caries* appears on the upper surface of a Tooth, it is then applied to the surface of the opposite, and in the same manner affects it, as is particularly seen in the *molars*.

The *caries* sometimes proceeds from fractures in the Teeth; but is generally caused by falls and from violent efforts in breaking something of a hard nature with the Teeth.

The fractured Tooth can never be repaired; however, it ought not to be neglected, but carefully examined, as it requires the greatest assistance of art; for the Tooth has sometimes in the fractured part small cutting points, that will be of great detriment to the tongue, and be the cause of very painful and dangerous wounds; therefore they must be immediately taken off, to prevent mischief to the tender parts that they touch.

Whenever the *caries* appears, it must be opened by a masterly hand to the very bottom. If in so doing, the cord of the Tooth is discovered, the operation will prove very painful; but still it must be destroyed, either with an instrument, the actual cautery, or some caustic liquor.

We ought to be very attentive in the operation; for if we do not utterly destroy the said cord, but only prick it, the most raging pains will succeed, together with an inflammation, and the inevitable necessity of drawing the Tooth.

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Such a cure cannot but be very torturing; for not only the sensitive parts of the Tooth are to be exposed to the impression of the air, but also to be touched with an instrument, so as to be destroyed. The skilful operator must endeavour to assuage the pain of this patient by the assistance of medicines.

When a Tooth by the loss of its cord is become insensible, it must be filled with lead or gold, in order to prevent any acid or saline particles from getting through the hole where the *cord* went into the socket, to hurt its delicate membranes; for then there could be no means of redress, by drawing the Tooth: hence all the care that had been taken, and all the pain that had been endured to render the Tooth insensible, would then be of no avail.

Of the TARTAR.

We shall now proceed to treat of what is commonly called the Tartar. From whatever occasional or secondary cause the Tartar proceeds, the principal one is certainly negligence. It hath been called by some a *cancer*, because it corrodes the gums and the socket in

such a manner, that the Teeth will fall out for want of support. It is generated by the fragments of aliments that stick to the Teeth, by a vitiated *saliva*, or by an imperfect digestion, &c.

Whenever this viscid matter is allowed to stick to the Teeth, it grows hard, and degenerates into *Tartar*, and will augment by degrees, from new particles of aliments continually joining the old ones; but this would never happen, if the Teeth were carefully cleaned every morning with something proper for that purpose.

This Tartar is a kind of crust, not only disagreeable to the eyes, but also productive of very foetid exhalations.

There are various sorts of Tartar, viz. the yellow, the whitish, the black, and even the green *Tartar*, which is the most pernicious, as it often destroys the enamel. The lower *incisores* are more subject to the *Tartar*, chiefly in their internal side, because of their vicinity to the tongue, and of the *saliva*, which runs mostly that way. Although persons

fons grown in years are generally more liable to be troubled with the Tartar, yet we frequently see the Teeth of young people all covered with it.

Whatever is the cause that produces this Tartar, or whatever the time of its appearance, it ought to be removed as soon as possible, otherwise the gums, by the compression, will swell, and obstruct the regular course of the fluids through the *lymphatic* and blood-vessels, which will therefore be liable to putrify, and destroy, in a short time, the gum, the socket, and the *periosteum* of the root;

This is the reason why Teeth grow loose and painful. At that time if you were even, then to cut off this *heterogeneous* body, it would be too late to hinder the loss of the Tooth, which is now left without any support from the gums, the *periosteum*, and the sockets.

The *Tartar* sometimes is even thicker than the body of the Tooth, to which it sticks so close, that they seem to form one single body,

therefore it requires a dexterous and skilful hand to remove it. In such a case, we must endeavour to render the course of the humours free again to the gums, by restoring them with proper astringent and antiscorbutic medicines.

Some Teeth, after having been freed of their *Tartar*, will shew a very beautiful enamel; which makes it evident that such a *Tartar* is not of so acrid or corrosive a nature as the green kind generally is.

Of the DISORDERS the SOCKETS are liable to.

The Sockets are also subject to *caries* as well as the Teeth, although not so often. The causes that produce such an effect in them, are the very same with those formerly delivered as the internal cause of *caries* in the Teeth.

The sockets are also liable to be destroyed by degrees, in the same manner as the roots of the *milk-teeth*.

This fatal disorder proceeds from a stagnation of humours in the gums, where they putrify,

putrify, or from any sharp or corrosive particles that may penetrate and corrode them insensibly. Also from a stagnation of the fluids in the serous or blood-vessels of the gums, the sockets and their partitions will sometimes grow soft, and become entirely of a fleshy consistence, which therefore leaves the Tooth without support. Old men generally lose their sockets entirely, because the nutritious juices that formerly served to nourish the gums are now no longer distributed to them.

It is worth observing, however, that persons of a robust constitution are not so liable to lose their sockets, and consequently their Teeth; for we see people extremely old with all their Teeth, with their gums quite perfect, and therefore their sockets must be sound and well.

There is no other way to prevent those disorders, but by taking a particular care in cleaning the gums, never letting any corrosive particles, or any viscid matter, that is likely to putrify, enter into the socket, so
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that the gums may become strong, and apply themselves closely round the necks of the Teeth.

Of the Disorders of the GUMS.

Whenever the gums are affected, they generally lose their colour, their firmness, and consequently their adhesion to the Teeth; they will at different times appear pale, flabby, relaxed, rough, corroded, inflamed, and wrinkled. The levidity of the gums proceeds from some defect in the circulation of the blood through them.

To remedy as much as possible so disagreeable a circumstance, it will be proper to rub the gums pretty often in the morning, and likewise to scarify them in order to let out some blood, and in that way promote the circulation.

If, after these means have been used, the complaint remains the same, it will be then necessary to have the Physician's assistance, as the fault must be rooted in the constitution.

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The gums grow often so thick, that they in some measure resemble pincushions, and by communicating their swelling to the lips, they will greatly deform the mouth and face.

This disorder proceeds either from the compression of the Tartar, or a local *plethora*. --- If it proceeds from the first of these, the Tartar must be removed immediately; then scarify or prick the gums, and administer proper antiscorbutic and astringent medicines fit to brace them up.

But if the swelling proceeds from a *plethora*, which is easily known, a proper method must be taken to evacuate the vitiated humours, and to diminish the thickness of the gums, in the points that run in betwixt each Tooth, where the swelling more manifestly appears; then proper astringents should also be applied to prevent the complaint from recurring; the patient must live on a proper regimen, and submit to the necessary abstinences.

A swelling, as big as a strawberry, sometime appears in the gums of young people, which
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is more unsightly and deformed than dangerous; but it is necessary to discuss it as soon as possible. The same causes that swell the gums, will also produce excrescences upon them.

If these proceed from an external cause, the effect will cease when once that is removed; but where the cause is internal, all outward applications will be useless. Sometimes these excrescences will be greater than at other times.

When they begin, they are never dangerous; but if they are neglected and increase, the Tooth soon becomes loose, and of course is soon lost. Absorbent remedies are to be applied in the beginning; but when the excrescence is arrived to a certain size, then it cannot be destroyed but either by carefully cutting off the redundant part of the gum, or by consuming it some other way.

The substance of the gums may be diminished either for want of sufficient nourishment, or by being too tense and firm; for
then

then they are apt to hinder the fluids from circulating properly : hence it happens that the Teeth are deprived of their necessary support, and the gums become a very disagreeable sight to the eye. The want of juices, and the contracted state of the vessels (which are the chief causes) may be removed by means of proper emollients, &c. which by relaxing the parts that were too tense and firm, will promote the dilatation of the vessels, and consequently the course of the humours will be more free, and their quantity augmented. We must not, however, delay the cure too long, for sometimes art comes too late.

The paleness of the gums proceeds from the deficiency of the globular part of the blood, which may be occasioned likewise by the narrowness of the vessels. It is easy, by rubbing the gums pretty often, to recall the blood, and consequently restore to them their natural colour.

Whenever the gums are relaxed, and want that tensility and firmness which is so absolutely

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ly necessary for their being in a sound state; various complaints are generally the consequence, and therefore proper *antiscorbutic* astringents must be made use of, in time, to prevent and remedy such fatal disorders.

The gums are sometimes rough, as if spread all over with little grains like millet-seeds, under the skin. These little tumours are hard and ugly; sometimes will come to a supuration, and render the gums very painful. These are therefore to be prevented by applying very strong resolvents; then we must make use of detergents; and come by degrees to astringents.

Children who eat too much sugar, or sweetmeats, generally have their gums corroded; *Confectioners* and *Chymists* are subject to this disorder, because the saline and corrosive particles that fly from the sugar and minerals affect their gums. This disease should by no means be neglected; and first of all, the cause must be removed; then the proper astringent and sweetening medicines must be administered, to purify the mass of blood; and

and it is very necessary to abstain from every thing too salt, spicy, high-seasoned, or what else may render the blood acid or sharp.

The inflammation of the gums proceeds, for the most part, from the impression of cold air: The best remedy, therefore, is to keep them warm.

That the gums are also subject to cancerous tumours, from the above causes, evidently appears; and they should always be speedily extirpated. Such a disorder must be considered as a local affection, that has proceeded from some glandular or vascular part of the gums being vitiated, together with an internal or predisposing cause in the habit; it requires, therefore, a very serious and mature consideration, before such a cure is undertaken, lest we should hurry on to the operation too precipitately.

Sometimes ulcers will affect the gums; their external causes are rotten Teeth, the tartar, violent falls, blows, vitiated saliva, or any other injury offered to them.

The scurvy and vitiated humours are the
internal

internal causes, and therefore a radical cure of the ulcers will never take place, except these are entirely got the better of.

They are sometimes more, sometimes less deep in the gums; when they are not deep, astringents and antiscorbutics may be of use; but when they are deep, they will even produce a swelling, and an excrescence in the gums; and therefore we must take care to cut off the superfluity, and follow the method that was mentioned when we spoke of Tumours and Excrescences.

Ulcers are of different sorts, and vary greatly in their appearance; but as they always proceed from the above causes, (and the nature of this work, will not allow of prolixity) it will be unnecessary to describe them.

The *abscesses* or *imposthumes* that are formed in the gums, proceed, for the most part, from some bad Tooth, or from some Tooth not drawn in time: or they may proceed from the intemperature of the air, from some violent blow, &c. as also from the extraction

tion of a Tooth difficult to draw. When the *cord* of the Tooth is left uncovered, either by a *caries*, or some other cause, it swells and inflames, communicating the inflammation to the *periosteum*, that covers the root, and lines the socket and substance of the maxillary bones; then proceeds to the socket, and so to the gums, where the abscess is formed, from its being a much softer part. We must not neglect to examine the Tooth, and if we find that to be the cause, it must be drawn immediately, even if there was a *fluxion* of humours upon the gums; for the corrupted matter that stagnates in that place, might be very pernicious to the contiguous bony substance: then we must make use of those remedies that are prescribed in such cases, in order to make a perfect cure; for if it was not speedily effected, it would prove destructive to the gums, the sockets, and contiguous Teeth.

The same causes also will produce *fistulas* in the gums, which are more or less of a malignant nature.

In order to remove them, it will be proper to make use of the same things that were prescribed for the *abscesses*, or of any thing else that the skilful Practitioner will find necessary.

Little Cancers that appear sometimes in the gums may be destroyed by a caustic; those that arise from some internal cause, are more malignant and stubborn: sometimes they are very numerous and small, of colour different from other cancers, and almost always accompanied by ulcers somewhere else.

Those that proceed from the fluids being tainted by the venereal disease, are distinguished from those that arise from a scorbutic humour; for the former are deeper, more painful, and full of blood, yielding a great quantity of fœtid matter, and occasions a great swelling in the lips.

The second are of a milder nature, and not so inflammatory. Without purifying the vitiated humours internally, as was formerly hinted, all outward applications will be quite useless.

The

The gums are also subject to suppuration, and in this way, not only they are liable to be destroyed, but the Teeth also. I have remarked, that fat persons are more subject to this disorder than those of a meagre constitution, on account of their having a greater quantity of humours; the fore parts of the *incisores*, *canini*, and small grinders, towards the root, are most liable to be affected with it; they grow of a brownish colour, and in proportion as the disorder either increases or declines, they assume a different appearance.

Suppuration frequently happens in those gums where the sockets are wanting. The gum being, as well as the socket, divested of the *periosteum*, and consequently not able to adhere, is, by being left to itself, and exposed to the air, affected with little ulcers, that will soon occasion suppuration; and therefore it becomes necessary (in order to avoid more dangerous consequences) to cut off that part of the gum which is left unattached, and likewise to remove all other

causes, such as the surcharge of humours, &c. by adhibiting medicines that may be adapted to answer that end.



APPENDIX.

TO this Edition of my Treatise I have added the following Cases, which fell under my own inspection. They are faithfully related, and I apprehend contain some things not generally known even to many of the Faculty, and consequently may be of use to the Public.

CASE I.

ABOUT three years since, a Lady from the County of Kent, having had one of the *dentes molares* on the left side of the upper jaw unskilfully drawn, applied to William Bromfield, Esq. Surgeon to Her Majesty, and to St. George's Hospital, (a Gentleman not more distinguished by his masterly knowledge in his profession, than by his liberality and politeness) who, upon inspecting the seat of the complaint, desired I might be sent for. Her distress we suspected arose from matter contained in the hollow part of the maxillary bones, which form the sinus called *Antrum Highmorianum**.---Upon acquainting the Lady with the little pain the operation would give her, she consented to its being performed; and in the presence of
Mr.

* This sinus is not very properly named from Dr. Highmore, as it was evidently known before his time to the great VESALIUS and others.—See Palfin's *Osteology*, tab. 2. fig. 2.—Drake's *Anatomy*, tab. 18. fig. 1. and 2.—Morgagni observes these sinus's are sometimes wanting, tho' very rarely, *Adversaria Anatomica*, vi.

Mr. Bromfield I made a puncture with the usual Instrument through the bottom of the socket of the Tooth which had been extracted, into the *sinus*, from whence a considerable quantity of very fetid matter of a disagreeable colour issued.---The *sinus* was directly deterged, by means of a syringe, with my Tincture; which being repeated every four or five hours, she perfectly recovered from her complaint in a few days.

CASE II.

A Gentleman in a distinguished station in the East Indies, about the same period returned to this Kingdom, in consequence of a complaint in his mouth, which arose from a broken point of one of the upper *incisores* irritating the gums. A fleshy excrescence,

the size of a large Filbert, was formed between the upper lip and the *Os Mala*, which was attended with severe pain, and had a cancerous appearance.---He consented to have the excrescence removed from the root, which I immediately performed with a small Bistury. A slight hæmorrhage followed, which was stopped with a piece of lint dipt in my Tincture, with which the wound was constantly washed twice a day; and in less than a week the patient was perfectly cured.

CASE III.

SOME years since, Captain Nelson of the Royal Navy, whom I accidentally met with at Portsmouth, shewed me a similar fleshy excrescence considerably larger than the former, which, whenever he was shaved, gave him

him uncommon pain. He applied to one of the Surgeons at the Hospital, who assured him the case was venereal, and had prepared him to go through a mercurial course.---I gave my opinion of the complaint; and the surgeon upon a consultation, having no objection to its being extirpated, I removed it with a Bistoury, and the cure was completed in a few days without any other application than the Tincture.

I saw this Gentleman two years afterwards, when his perfect state of health confirmed my prognostic, and convinced the Hospital-Surgeon of his mistake.

CASE IV.

A Lady of Distinction, about twenty-two years of age, in the month of July 1777, sent for me in consequence of a very alarming complaint

complaint in her mouth. Her gums appeared greatly swelled, looked very florid, and were exceedingly painful; she complained of a *brassy* taste, and had some difficulty of swallowing any kind of solid food.

An Apothecary in the neighbourhood had been applied to the day before I saw her, and pronounced the disease an inflammatory sore throat, from cold. Though at that time I had some suspicion that her distress arose from another source, I had no objections to her continuing the use of an emollient gargle with nitre, which had been ordered for her. The next day all her symptoms were aggravated, when being still further confirmed in the conjecture I had at first formed, I requested an experienced Surgeon might be consulted; and accordingly Mr. Glover, Surgeon-Major of the Essex Regiment, the following morning was called in. On inspecting the seat of the disorder, we found three of the lower *incisores* loose, the breath very fetid, and a great quantity of *saliva* secreted from the glands.---The last mentioned Gentleman, on our retiring, declared the

Lady

Lady had been taking some preparation of Mercury, which was the cause of the above symptoms.

As the matter was of so delicate a nature, and the other Practitioner did not fall in with this opinion, though it entirely corresponded with that I had at first adopted, the utmost caution was observed in asking the necessary questions of the Lady and her domestics. One of them after a long enquiry, said the Hair-dresser had occasionally used a small quantity of some mercurial pomatum. The man who lived in the neighbourhood, was directly sent for; and after some hesitation produced a box, which was found to contain about an ounce of the *Unguentum Neapolitanum*, not above *half a drachm* of which, it appeared, he had used in the dressing, in order to prevent a certain kind of *Animalculæ* breeding in the hair. By proper medical treatment the Lady recovered her health, in about ten days after; but her gums continued in a spongy, flaccid state, for some time, till they were brought to their natural beauty and firmness by the repeated use of the Tincture; which

which I found by experience, the best application yet discovered for strengthening the gums, and making them adhere to the Teeth, after they have been injured by the exhibition of mercurial medicines.

I have been the more particluar in the recital of the above Case, as I think a Ptyalism more frequently happens from this cause, than is generally imagined; and as it in a striking manner shews how soon some constitutions are affected by the smallest quantities of Mercury, even externally applied.---Two Cases which lately came under my inspection, though not attended with such severe symptoms, have corroborated this opinion.

CASE V.

I Shall just lay before the Reader another instance of the cause of a painful Disorder being egregiously mistaken.

AN

An Officer of the Guards, about twenty-three years of age, being last Autumn upon a visit to his friends in Yorkshire, was seized with a violent pain on both sides of the face; which, according to his own words, "ran along the upper jaw, and terminated at the ear."---His disorder was treated by a Practitioner, said to be very eminent for his physical knowledge, as a rheumatic complaint; for which he was bled, and took a quantity of medicines. But the pain continuing some days, with great violence, another Physician was consulted, who declared the disease was of a nervous kind; and accordingly ordered him into the warm bath, and prescribed Camphire and Opium in large doses. Receiving little benefit from this treatment, the Gentleman came to town, and consulted me the very evening of his arrival.

On examining his mouth, I felt two of the *dentes sapientiæ* of the upper jaw making their way through the gums, which I immediately lanced; and his complaint intirely left him before ten o'clock that night.

Several

Several Cases of a similar kind have come under my inspection, in the course of my practice ; but the above are sufficient to caution every sagacious Practitioner from pronouncing, without the strictest examination, upon the nature of general symptoms, which have been too often called by the names of Disorders that never existed,



CASE VI.

ABOUT the beginning of the year 1782, Richard Cary, Esq. late of the Middle Temple, of a healthy habit, about twenty six years of age, was afflicted with a violent heat, swelling and bleeding in his gums which prevented him from chewing his food, and which continued near three weeks, when he consulted an Apothecary, who attended him for
near

near two months, during which time he took several medicines, was bled, and constantly gargled his mouth with a solution of honey of roses in distilled vinegar.---The complaint however increased, and a Surgeon of character being called in, pronounced his case “ a
“ wasting of the alveolar process from a constitutional disease, which would probably
“ destroy the gums and occasion the loss of
“ most of his teeth.”

Not satisfied with this melancholy prognostic, he applied to a celebrated Dentist, who readily undertook to remove his complaint in a short space, by means of a lotion and opiate, which seemed in the course of some weeks only to increase the patient's distress.

In the month of July 1783, Mr. Cary's gums appeared one common ulcer, and the necks of the *incisores* and *canini* of the jaws were entirely denuded.

When I first saw him, about the beginning of August following, there was a considerable discharge of matter from the inside
of

of the gums, which appeared in puffs all along the upper jaw, of a dark brown colour, hanging over the sockets of the Teeth, most of which were loose.---I directly took off the ragged swellings of the gums with a bistory, which gave him no pain; and scarified them between each tooth, directing him to apply my Tincture several times a day with a fine sponge, adding to each spoonful of it, fifty drops of the Thebaic Tincture of the London Dispensatory. He was ordered to live sparingly with respect to rich animal soups, (which he had been suffered to indulge in for a considerable time) and drink a pint of the strong decoction of Peruvian Bark twice a day.

In about ten days, I took off several more pieces of redundant flesh from the gums, both of the upper and lower jaw; and had the great satisfaction to find fresh granulations of a fine natural colour sprouting round the necks of the Teeth which were loose.

In

In a week after, being disgusted with the bark, and in every respect better, he left it off, as well as the *Tinct. Thebaicæ*, using my Tincture only twice a day, (morning and evening) keeping it in his mouth from ten minutes or a quarter of an hour.

Mr. Cary being unexpectedly obliged to go to the Continent, I heard no more of him till last November, when I received the following letter :

SIR,

“ I THINK myself obliged, from a principle of gratitude, to return you my thanks
“ for the great advantages I have derived
“ from your Tincture, which effectually removed my complaints in little more than
“ five weeks after I began to use it, every
“ morning and evening. My teeth are now
“ firmly fixed in their sockets, and my gums
“ in a firm and healthy state. As I owe
“ this salutary alteration to the efficacy of
“ your valuable remedy, you are at liberty to

G

“ publish

TREATISE OF THE DEBILITY

"publish an account of my case, which the
 "faculty have pronounced a very singular
 "one, in the papers, or in any other manner
 "you may think expedient. I am, Sir, &c. &c.

R. CARY.

Spa, Nov. 6.

MR. RUSPINI,

Pall-Mall, London.



